

FORTUNE FOR FARMERS.

Where Irrigation is Impossible,
Desert Land May be Cultivated
Without Water.

Valuable and Wonderful Discovery
Reported by the Agricultural
Department.

Guided by Nature, Officers of the Bureau
Experiment in the Arid Region
With Native Grasses.

The most important piece of news that has reached the agricultural department at Washington for a long time past is conveyed by a report just received from south-western Kansas, announcing that the problem of making the Great American Desert productive without water has been definitely solved at last, says a Washington dispatch to the St. Louis Globe-Democrat. When this is said, it is meant to imply that the arid belt of the west, extending from the 100th meridian to the base of the Rocky Mountains, can be made to bear profitable crops, without the aid of irrigation, through processes of the simplest sort, devised and carried into effect by government botanists during the last few months. When it is considered that the most enthusiastic advocates of irrigation in the dry region admit the impossibility of moistening, by artificial means or otherwise, by far the greater part of this discovery—if thus it may be called—can be freely guessed at. To make a barren waste produce food-plants profitably without supplying water—such was the problem with which the botanical division of the agricultural department found itself awhile ago confronted.

Accordingly an experiment station was started by the division last autumn in south-western Kansas, not far from Garden City. This particular location was chosen because its conditions were typical of the arid region generally. Two hundred and forty acres were bought—eighty acres in one spot and 160 in another. The land was mostly open prairie, the surface a stiff clay loam, the top of which was baked by the sun into a firm crust, almost as impervious to rain as so much stone. About twenty inches of rain fell, it was learned, in a twelve-month—pretty nearly the average throughout the desert belt—and, of course, it ran off without entering the soil. The experimenters of the station and its men set to work to see what could be done with the eighty-acre patch. To eight acres of the space, however, they mainly confined their preliminary experiments; the rest, for the most part, they planted with forage for the mules and cattle, employing irrigation to help things along; but the eight acres were not irrigated or supplied with water in any manner, artificially. The eight acres, as originally found, were covered with burr-grass and a prickly perennial weed with a long botanical name, that is regarded out west as a worse curse than the Canada thistle, being even more difficult to eradicate. All this was cleared off in the early part of last fall. The soil was plowed and harrowed until thoroughly pulverized a foot deep, and last spring it was planted with grasses and forage plants. It was found that the winter's frosts tended to disintegrate the baked surface crust and render it readily arable. Only eight acres were treated in this way, because there were only seeds enough of the sorts desired to plant that amount of space.

The notion of the agricultural department has been that the food-plants best adapted for arid use in the dry belt had been already placed there by all-wise nature. And so—assuming as no seeds of such plants were purchasable—men were sent over the prairies of western Kansas and Colorado, in September and October of last year, with sacks over their shoulders and sheep-shears in their hands, to cut off the tops of the ripened grasses and things. For it was desired to plant these seeds and find out what they would do with cultivation. Also, forty kinds of grass and forage plant seeds were imported from abroad, including eighteen or twenty varieties from India. These were all planted last spring on the eight acres in the dry pulverized soil, together with a dozen species collected by the seed-gatherers from the prairies. The latter species were nearly all represented likewise by even varieties of grass, planted in the shape of sods—from one to five square rods of each—got within the neighborhood of the station. Such was the work of the spring of last year. The prickly weed persisted in reappearing and gave an immense deal of trouble; men had to go over the land constantly with gloves and pick it off by hand. No water was contributed artificially to the ordinarily parched land, and the experimental party devoted its attention to putting up buildings for lodging the party and for storing seed, while it waited to find out what would come up, without water, from soil that, for lack of water, had never produced anything before.

Part of the eight acres was covered with matted straw, after the planting, and part was not. The area left uncovered produced very little, for—as is usual in that region of wind-swept plains—the powdered surface soil, with the seeds, was blown away. But the part covered with the straw produced, without a drop of water supplied, crops from the scanty rains, a far more abundant harvest of plants than the rest of the eight acres, which had been sown to feed the mules and cattle of the expedition. In a word, it has now been discovered—and the agricultural department is for the first time prepared to make the announcement—that the average soil of the great American desert can be made to produce plentiful harvests of plants, if the plants are those, then also wheat, corn and potatoes, without any more water than it is supplied with at present. To accomplish the result, two things are needed—the ground must be pulverized deep to make a bed for holding the water that falls in rain, and the planted surface must be covered after the sowing of the first crop with matted straw. Subsequent crops will require no straw, for the reason that the matted roots will keep the dry earth from being blown away.

So here is an addition to human knowledge which should throw open to agriculture hundreds of thousands of acres hitherto deemed worthless and add hundreds of millions of dollars to the taxable valuation of the country. Dr. Vasey, chief of the botanical division, who has just returned from the Kansas grass station, told your correspondent that, among other things, the experiments above described had proved that the desert lands, unirrigated and treated in the way mentioned, would produce from ten to twenty tons of sorghum per acre a year. Every one knows what admirable cattle fodder that is. And cattle are the wealth of a Western husbandman. Meat and its feed would be readily grown and vegetables, however, did not grow likewise. All the farmer need do is to conserve his water by deep plowing and keep his loam from blowing away by a preliminary shift of straw. The straw applied is a thin layer of clean wheat straw, which is matted down by running a heavy hand roller over it.

True to the theory previously held by the agricultural department, the eleven or so grasses native to the soil of west Kansas flourished in the unwatered earth, only moistened by the scant rains, with the utmost luxuriance. The grasses from India did not germinate, probably because the long sea voyage in the damp hold of a vessel killed them. Some of the other foreign grasses, however, did grow in the same plants likewise. For instance, an imported forage plant called "sainfoin," resembling lucerne, came up wonderfully, as did also several very promising foreign varieties, and so on. Among the native grasses that grew best

were three kinds of "blue-joint," and also "switch-grass," and the famous "blue-stem" of Colorado, so valued by the ranchmen. Next spring the entire 240 acres of the Kansas Station will be planted with experimental crops in grasses and forage, without a particle of irrigation; there will be plenty of seed then on hand for planting the whole tract. The chief trials plants in that region have to bear the cold winds of March and April, which sweep away with hurricane force the plowed soil, and the hot winds, like the sirocco of the Sahara, which pass over the land in July and August, and sometimes blight the ripened crops within a few hours with their withering breath, even drying up the tops of the plants and destroying the seeds. The agricultural department here is at present occupied in extending this important work by engaging the assistance in it of the state experiment stations of Utah, Colorado and New Mexico.

Winter Excursions to California.
On the 15th day of every month the Northern Pacific Railroad company will sell excursion tickets to San Francisco and return at \$75 to Los Angeles and return \$94. These tickets have an extreme limit of six months from date of issuance and can be used going any time within sixty (60) days from date of sale. Stop-overs allowed at any point desired—either going or returning—within limit of tickets. Excursionists have choice of two routes from Portland—by steamer, or by rail, via the famous Mount Shasta route. Bear in mind that the Northern Pacific is the only line running through sleeping and dining cars to the Pacific coast.
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There was a terrible epidemic of dysentery and bloody flux in Pope county, Illinois, last summer. As many as five deaths occurred in one day. Messrs. Walter Brothers, of Waterloo, sold over 300 bottles of Colic, Cholera, and Diarrhoea Remedy during this epidemic, and say they never heard of its failing in any case when the directions were followed. It was the only medicine used that did cure the worst cases. Many persons were cured by it after the doctors had given them up. Twenty-five and 50-cent bottles for sale by H. M. Parthen & Co.

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To Get

any trial; that if I did not like it I need not say anything, etc. But he could not prevail on me to change. I told him I had taken Hood's Sarsaparilla, knew what it was, was satisfied with it, and did not want any other. When I began taking Hood's Sarsaparilla I was feeling real miserable with dysentery, and so weak that at times I could hardly

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stand. I looked like a person in consumption. Hood's Sarsaparilla did me so much good that I wonder at myself sometimes, and my friends frequently speak of it." Miss ELLA A. GORF, 61 Terrace Street, Boston.

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PHOTOGRAPH FROM LIFE TAKEN ONE YEAR AGO.

PHOTOGRAPH FROM LIFE AS SHE NOW APPEARS.

"Look on this picture and then on that." The above faces are exact reproductions of photographs taken from life of Mrs. Morton D. Harlan, who resides at No. 55 West 25th Street, New York City. The first one was taken in November, 1887, while in the last stages of consumption, abandoned by physicians and nursed by friends. The other was taken in December, 1888, when, completely recovered, and entirely through the use of Dr. Acker's English Remedy for Consumption. The above pictures are wood cuts, but they are true to life and the original photographs, taken from life, can be seen at all the drug stores. Mrs. Harlan's consumption began as consumption usually does, with a cough in the morning, rising of phlegm, tired and depressed feelings, a lack of appetite, the loss of flesh and pains throughout the body. She did not realize her extreme danger until it became almost too late, but she is in perfect health to-day. Dr. Acker's English Remedy for Consumption is sold by all reputable druggists. You can't afford to be without it.

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As a powerful invigorating tonic, it imparts strength to the whole system, and to the womb and its appendages in particular. For overworked, "burnt-out," "run-down," debilitated teachers, milliners, dressmakers, seamstresses, "shop-girls," housekeepers, nursing mothers, and feeble women generally, Dr. Pierce's Favorite Prescription is the greatest earthly boon, being unequalled as an invigorating, refreshing, and restorative tonic.

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Dr. Pierce's Favorite Prescription is a legitimate medicine, carefully compounded by an experienced and skillful physician, and adapted to women's delicate organization. It is purely vegetable in its composition and perfectly harmless in its effects in any condition of the system. For morning sickness, or nausea, from whatever cause arising, weak stomach, indigestion, dyspepsia, and all ailments of the stomach, it will prove very beneficial.

"Favorite Prescription" is a positive cure for the most common and obstinate cause of leucorrhoea, excessive flowings, painful menstruation, unnatural suppressions, prostrations, or failings of the womb, white leucorrhoea, "antecedent," retroversion, bearing-down sensations, chronic congestion, inflammation and ulceration of the womb, inflammation, pain and tenderness in ovaries, accompanied with "internal heat."

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